

Claim listing

1. (Original) A method of automatically locating and connecting a wireless communications device to a Internet Protocol (IP) network, comprising the steps of:

receiving an IP packet from a terminal on said network at a home agent;

said home agent transmitting an access-request message to an authentication server, said access-request message comprising a destination IP address found in said IP packet;

said authentication server responsively issuing an access-accept message to said home agent if said device is authorized to receive said IP packet, said access-accept message comprising information uniquely identifying said device;

said home agent transmitting an Address Resolution Protocol packet containing said information uniquely identifying said device on said network to a mobile node location server, said mobile node location server maintaining a table mapping IP addresses for a plurality of mobile communication devices to information uniquely identifying said devices;

in the event that an IP address for said device is not found by said mobile node location server in said table, responsively paging said device via a wireless communication network, and

said device responding to said page and thereby initiating a connection via said wireless communication network to said IP network whereby said IP packet may be transmitted to said device.

2. (original) The method of claim 2, wherein said mobile node location server

comprises a network access server coupling said wireless communication server to IP network.

3. (original) The method of claim 1, wherein said device initiates a connection with said IP network via said network access server.

4. (original) The method of claim 1, wherein said access-accept message specifies a local area network as the network to use to locate said device.

5. (currently amended) ~~The method of claim 1,~~ A method of automatically locating and connecting a wireless communications device to a Internet Protocol (IP) network, comprising the steps of:

receiving an IP packet from a terminal on said network at a home agent;

said home agent transmitting an access-request message to an authentication server, said access-request message comprising a destination IP address found in said IP packet;

said authentication server responsively issuing an access-accept message to said home agent if said device is authorized to receive said IP packet, said access-accept message comprising information uniquely identifying said device;

said home agent transmitting an Address Resolution Protocol packet containing said information uniquely identifying said device on said network to a mobile node location server, said mobile node location server maintaining a table mapping IP addresses for a plurality of mobile communication devices to information uniquely

identifying said devices;

in the event that an IP address for said device is not found by said mobile node location server in said table, responsively paging said device via a wireless communication network, and

said device responding to said page and thereby initiating a connection via said wireless communication network to said IP network whereby said IP packet may be transmitted to said device;

wherein said access-accept message specifies a signaling system 7 network at the network to use to locate said device.

6. (original) The method of claim 1, wherein said step of paging comprises the step of sending a call set-up message to an element in said wireless communications network to page said device.

7. (previously presented) A method of automatically locating and connecting a wireless communications device to an Internet Protocol (IP) network, comprising the steps of:

receiving an IP packet from a terminal on said network at a home agent;

said home agent transmitting an access-request message to an authentication server, said access-request message comprising a destination IP address found in said IP packet;

said authentication server responsively issuing an access-accept message to said home agent if said device is authorized to receive said IP packet, said access-accept

message comprising information uniquely identifying said device;

said home agent transmitting a query message to a home location register node on a Signaling System 7 network, said home location register node responsively replying to said home agent with location information for said device;

paging said device via a wireless communications network; and

in response to said page, said device initiating a connection via said wireless communications network to said IP network whereby said IP packet is transmitted to said device.

8. (original) The method of claim 7, further comprising the step of sending a call set-up message from said home agent to a mobile switching center for said wireless communications network to initiate said paging of said device.

9. (original) The method of claim 8, wherein said device initiates said connection via a network access server coupling said wireless communications network to said IP network.

10. (previously presented) A method of connecting a mobile wireless communications device to an Internet Protocol (IP) network, said wireless communications device being a subscriber to a wireless communications network, comprising the steps of:

authenticating said device to determine whether said device is authorized to receive an IP packet from a terminal connected either directly or indirectly to said IP network;

searching, with a location server on said IP network, for an existing IP address for routing said IP packet to said device when an IP packet is received by a node in said IP network destined for said device;

if said step of searching results in a negative result, responsively paging said device via said wireless communications network; and

connecting said device to said IP network via a network access server coupling said wireless communications network to said IP network when said device responds to said page by connecting to said network access server, said network access server notifying said location sever that it has said connection with said device and providing an IP address for said device to said location server, said IP address forwarded to said home agent whereby said device receives said IP packet and initiates communication via said IP network with the source of said IP packet.